

## 03050201-060

(Back River)

### General Description

Watershed 03050201-060 is located in Berkeley County and consists primarily of the **Back River** and its tributaries. The watershed occupies 49,163 acres of the Lower Coastal Plain region of South Carolina. The predominant soil types consist of an association of the Bladen-Wahee-Bohicket-Hobcaw series. The erodibility of the soil (K) averages 0.17; the slope of the terrain averages 1%, with a range of 0-2%. Land use/land cover in the watershed includes: 64.1% forested land, 12.7% forested wetland, 12.1% urban land, 5.1% agricultural land, 3.9% scrub/shrub land, 1.7% water, and 0.4% barren land.

The Back River forms from swamp drainage and flows into the Cooper River. Laurel Swamp (Gants Mill Branch, Tillmans Branch, Poplar Branch, Daisy Swamp, King Branch, Huckhole Swamp), Sophia Swamp (Lindsey Branch, Brick Bound Swamp), and Canterhill Swamp flow into the Back River, which is joined downstream by Chicken Creek. The Back River is dammed further downstream to create the Back River Reservoir (also known as the Bushy Park Reservoir) and insure freshwater storage for industrial purposes. Water is not released from the dam but is pumped into the Cooper River near Bushy Industrial Park. The waters downstream from the dam are essentially backflow from the Cooper River (SB). Prioleau Creek (Long Field Pond, Crane Pond) enters Back River Reservoir in the upper lake region and Foster Creek enters the reservoir near the dam. There are numerous recreational ponds (15-50 acres) in the watershed and a total of 179.1 stream miles, all classified FW.

### Water Quality

<u>Station #</u>	<u>Type</u>	<u>Class</u>	<u>Description</u>
MD-152	P	FW/SB	BACK RIVER (COOPER R. WATER) AT S-08-503
MD-217	P	FW	DURHAM CREEK AT S-08-9 BRIDGE
MD-240	P	FW	FOSTER CREEK AT CHARLESTON CPW WATER INTAKE

**Back River (MD-152)** - This site is essentially Cooper River water that has backed up due to the nonreleasing dam on the Back River. The reduction in freshwater input to the Cooper River due to the Cooper River Rediversion Project (1985) has resulted in changes in the hydrologic characteristics of the river and may be responsible in part for some of the long term changes observed in water quality parameters. The site is located in a transition area between fresh and salt waters and shows characteristics of both. Aquatic life uses are fully supported. There was a significant decreasing trend in dissolved oxygen concentration, a significant increasing trend in turbidity, and a very high concentration of zinc measured in 1995. There is no significant trend in dissolved oxygen concentration when only post-rediversion data (1986-1998) are considered. Significant decreasing trends in five-day biochemical oxygen demand and total nitrogen concentrations suggest improving conditions for these parameters. A very high concentration of chromium and a high concentration of nickel and lead were detected in the 1994 sediment sample, and a very high concentration of cadmium, chromium, and nickel,

and a high concentration of zinc were detected in the 1998 sample. The lead concentration in 1994 and 1995, and the cadmium and nickel concentrations in 1998 exceeded the Effects Range Low (ERL) concentration, but were less than the Effects Range Median (ERM) concentration. Recreational uses are fully supported.

**Back River Reservoir** - The reservoir (850 acres) has been treated annually during the past ten years with aquatic herbicides in an attempt to control the growth of aquatic macrophytes in areas of public access and at water intakes.

**Foster Creek (MD-240)** - Aquatic life uses are not supported due to dissolved oxygen excursions and occurrences of copper in excess of the aquatic life acute standards. In addition, there is a significant increasing trend in total phosphorus concentrations, a very high concentration of cadmium measured in 1994, and a high concentration of copper measured in 1995 and 1997. There is also a significant increasing trend in pH. A significant decreasing trend in five-day biochemical oxygen demand concentration suggests improving conditions for this parameter. Recreational uses are partially supported due to fecal coliform bacteria excursions.

**Durham Creek (MD-217)** - Aquatic life uses are fully supported; however there was a very high concentration of chromium measured in 1995. A significant decreasing trend in five-day biochemical oxygen demand suggests improving conditions for this parameter. Recreational uses are fully supported.

*A fish consumption advisory has been issued by the Department for mercury and includes the Back River Reservoir within this watershed (see advisory p.62).*

## NPDES Program

### Active NPDES Facilities

<b>RECEIVING STREAM FACILITY NAME PERMITTED FLOW @ PIPE (MGD) COMMENT</b>	<b>NPDES# TYPE LIMITATION (EL/WQL)</b>
BACK RIVER BAYER CORP. PIPE #: 003 FLOW: M/R	SC0003441 MAJOR INDUSTRIAL EFFLUENT
LINDSEY BRANCH JW ALUMINUM CO. PIPE #: 001 FLOW: M/R	SCG250105 MINOR INDUSTRIAL EFFLUENT
POPLAR BRANCH THOMAS DANIELS 17A BORROW PIT PIPE #: 001 FLOW: M/R	SCG730005 MINOR INDUSTRIAL EFFLUENT
LAUREL SWAMP KC MHP #3	SC0032859 MINOR DOMESTIC

PIPE #: 001 FLOW: 0.015  
WQL FOR BOD<sub>5</sub>, NH<sub>3</sub>-N, TRC, DO

WATER QUALITY

## Nonpoint Source Management Program

### *Mining Activities*

*MINING COMPANY*  
*MINE NAME*

*PERMIT #*  
*MINERAL*

ACRE MAKER, A PARTNERSHIP  
17A MINE PIT

0743-15  
SAND/CLAY

### *Land Disposal Activities*

#### **Landfill Facilities**

*SOLID WASTE LANDFILL NAME*  
*FACILITY TYPE*

*PERMIT #*  
*STATUS*

SANTEE RIVER RUBBER CORP.  
INDUSTRIAL

082623-5201  
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## Water Supply

*WATER USER (TYPE)*  
*STREAM*

*REGULATED CAPACITY (MGD)*  
*PUMPING CAPACITY (MGD)*

MILES INC. (I)  
BACK RIVER RESERVOIR

8.64  
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EI DUPONT (I)  
BACK RIVER RESERVOIR

3.24  
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AMOCO CHEMICAL CO.(I)  
BACK RIVER RESERVOIR

9.00  
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FOXBORO GOLF RESORT (I)  
BACK RIVER RESERVOIR

8.64  
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CITY OF CHARLESTON (M)  
FOSTER CREEK

125.0  
150.0

## Growth Potential

There is a moderate potential for growth in the form of scattered low density development. Water and sewer service is available to most of the watershed. Fresh water is a vital necessity to the area's economy. The Back River and its tributaries are a major source of fresh water for the public water supply and many of the large industries located along the Cooper River. Another source is the interbasin transfer via a pipeline connecting the Edisto River to the Hanahan WTP.